

AMENDMENT(S) TO THE CLAIMS

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3 1. (currently amended): A method comprising;
4 compressing video objects;
5 generating at least one corresponding elementary stream comprising the
6 compressed video objects;
7 classifying information within each elementary stream based on importance
8 and responsive to the compressed video objects; and
9 assembling the classified information into packets associated with different
10 classes of network packets that belong to a single session.

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12 2. (original): The method as recited in Claim 1, wherein classifying the
13 information within each elementary stream based on importance further includes
14 assigning different priority levels to shape, motion, and texture information.

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16 3. (original): The method as recited in Claim 2, wherein assembling
17 the classified information into packets associated with different classes of network
18 packets further includes selectively multiplexing a plurality of the network packets
19 with the same priority level into an application level packet.

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21 4. (original): The method as recited in Claim 2, wherein assembling
22 the classified information into packets associated with different classes of network
23 packets further includes arranging the content of at least one of the network
24 packets in an interleaving fashion.
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1 5. (original): The method as recited in Claim 1, wherein the different
2 classes of network packets are associated with a network that provides
3 differentiated services (Diff- Serv) such that an adaptive transmission environment
4 is implemented for multimedia communications using scalable coding technology
5 using the differentiation capabilities within at least one network session.

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7 6. (currently amended): A method comprising:
8 packetizing content information;
9 generating resource coordination information based at least in part on at
10 least one prioritizing parameter associated with an application communicating the
11 content information and on one or more prioritizing parameters associated with a
12 user interaction;

13 selectively associating each packet of content information with a service
14 class selected from among at least two different service classes based on the
15 resource coordination information;

16 ~~implementing rate control based on minimizing quality degradation~~
17 ~~responsive to a video quality weighting factor, a packet loss rate, and respective bit~~
18 ~~rates of respective service classes;~~

19 selectively outputting at least one packet of content information based on a
20 priority associated with the service class associated with the packet of content
21 information ~~and responsive to the implemented rate control;~~ and

22 providing the at least one packet of content information to a network.
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1 7. (original): The method as recited in Claim 6, wherein generating the
2 resource coordination information further includes generating the resource
3 coordination information based at least in part on at least one prioritizing
4 parameter associated with at least one remote device that is operatively coupled to
5 the network.

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7 8. (original): The method as recited in Claim 6, wherein generating the
8 resource coordination information further includes generating the resource
9 coordination information based at least in part on at least one prioritizing
10 parameter associated with a monitored performance of the network.

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12 9. (original): The method as recited in Claim 6, further comprising
13 encoding initial content information as the encoded content information.

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15 10. (original): The method as recited in Claim 9, further comprising
16 segmenting raw video data into a plurality of video objects and wherein at least
17 one of the video objects is included in the initial content information.

18
19 11. (previously presented): The method as recited in Claim 9, wherein
20 the initial content information includes data representing media information
21 selected from a group comprising video information, audio information, image
22 information, and textual information.

1 **12.** (previously presented): A computer-readable media comprising
2 computer instructions for performing acts comprising:

3 generating prioritization information based at least in part on at least one
4 parameter associated with an application streaming media information;

5 associating packets of the media information with a service class selected
6 from a plurality of different service classes based on the prioritization information;

7 selectively discarding a portion of the packets of the media information in
8 accordance with an adaptive rate control mechanism at a sending computing
9 device; and

10 selectively outputting some of the packets of media information based on
11 their respective service class priority levels.

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13 **13.** (previously presented): The computer-readable media as recited in
14 Claim 12, wherein the media information includes data representing media
15 information selected from a group comprising video information, video objects,
16 audio information, image information, and textual information.

1 **14.** (Previously presented): An apparatus comprising:
2 logic configured to process content information output by an application
3 layer process and provide resulting processed content information to a network
4 layer process, the logic implementing at least one protocol layer process
5 configured to packetize the content information, a queuing layer process
6 configured to prioritize the packetized content information in accordance with
7 different priorities within a single session, and a scheduling layer process
8 configured to selectively provide the prioritized packetized content information to
9 the network layer process based on at least one quality of service parameter.

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11 **15.** (original): The apparatus as recited in Claim 14, wherein the
12 queuing layer process is configured to provide a plurality of priority class queues
13 arranged to queue the packetized content information.

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15 **16.** (original): The apparatus as recited in Claim 14, wherein the logic
16 further includes an application-aware quality of service control layer process and a
17 packet mapping layer process configured to operatively provide quality of service
18 differentiation of the content information within a flow of content information
19 from the application layer process.

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21 **17.** (original): The apparatus as recited in Claim 14, wherein the
22 protocol layer process operatively includes at least one protocol selected from a
23 group of protocols including TCP, UDP, and IP.

1 **18.** (previously presented): The apparatus as recited in Claim 14,
2 wherein the content information includes data representing media information
3 selected from a group comprising video information, audio information, image
4 information, and textual information.
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1 19. (previously presented): An apparatus comprising:
2 packetizer logic configured to receive encoded content information and
3 output corresponding packets of content information;
4 collaborator logic operatively coupled to the packetizer logic and
5 configured to receive at least one prioritizing parameter associated with at least
6 one application, including an application communicating the content information,
7 and one or more prioritizing parameters associated with a user interaction; the
8 collaborator logic further configured to output resource coordination information
9 based at least in part on the at least one prioritizing parameter associated with the
10 application and the one or more prioritizing parameters associated with the user
11 interaction;
12 priority mapping logic operatively coupled to the collaborator logic and
13 configured to receive the packetized content information and the resource
14 coordination information, and selectively associate each received packet of content
15 information with a service class selected from among at least two different service
16 classes based on the resource coordination information, and selectively output at
17 least one packet of content information based on a priority associated with each
18 service class; and
19 forwarder logic operatively coupled to the priority mapping logic and
20 configurable to provide the at least one packet of content information to a network.
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1 20. (original): The apparatus as recited in Claim 19, wherein the
2 collaborator logic is further configurable to receive at least one prioritizing
3 parameter associated with at least one remote device that is operatively coupled to
4 the network, and output the resource coordination information based at least in part
5 on the at least one prioritizing parameter associated with the remote device.

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7 21. (original): The apparatus as recited in Claim 19, further comprising:
8 network monitoring logic operatively coupled to the collaborator
9 logic and configurable for use with the network and in monitoring network
10 performance, and to output at least one prioritizing parameter associated with the
11 network performance, and

12 wherein the collaborator logic is further configured to receive the at
13 least one prioritizing parameter associated with the network, and output the
14 resource coordination information based at least in part on the at least one
15 prioritizing parameter associated with the network.

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17 22. (original): The apparatus as recited in Claim 19, further comprising:
18 encoding logic operatively coupled to the packetizer logic and
19 configured to encode initial content information, and output corresponding
20 encoded content information.

1 **23.** (original): The apparatus as recited in Claim 22, further comprising:
2 segmentation logic operatively coupled to the encoding logic and
3 configured to segment raw video data into a plurality of video objects, and output
4 initial content information that includes at least one video object.

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6 **24.** (previously presented): The apparatus as recited in Claim 22,
7 wherein the initial content information includes data representing media
8 information selected from a group comprising video information, audio
9 information, image information, and textual information.
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1 **25.** (currently amended): A system comprising:

2 a network environment including a backbone network, and a first access
3 network and a second access network each being operatively coupled to the
4 backbone network;

5 a plurality of host devices including a first host device operatively coupled
6 to the first access network and a second host device operatively coupled to the
7 second access network; and

8 a plurality of application-aware resource controllers including a first
9 application-aware resource controller operatively configured within the first access
10 network and a second application-aware resource controller operatively configured
11 within the second access network, wherein the first application-aware resource
12 controller is configured to selectively aggregate content information associated
13 ~~with at least one~~ a single communication session established between the first host
14 device and the second host device via the network environment, and mapping the
15 aggregated information to ~~at least one service class~~ two service classes selected
16 from a group of two or more different service classes.

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18 **26.** (original): The system as recited in Claim 25, wherein at least the
19 first application-aware resource controller is configured to selectively adapt a flow
20 rate associated with the content information based on an identified network state.

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22 **27.** (original): The system as recited in Claim 25, wherein at least the
23 first application-aware resource controller is configured to selectively adapt a flow
24 rate associated with the content information based on at least one identified first
25 device user requirement.

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2 **28.** (original): The system as recited in Claim 25, wherein at least the
3 first application-aware resource controller is configured to control the content
4 information responsive to application-based signaling.

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6 **29.** (original): The system as recited in Claim 25, wherein at least the
7 first application-aware resource controller is configured to operatively associate a
8 priority with the at least one service class.

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10 **30.** (previously presented): The system as recited in Claim 25, further
11 comprising at least one processing agent operatively configured within the network
12 environment and configured to selectively filter content information associated
13 with different communication sessions based on identified bandwidth constraints
14 and service classes.

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16 **31.** (previously presented): The system as recited in Claim 25, wherein
17 the content information includes data representing media information selected
18 from a group comprising video information, audio information, image information,
19 and textual information.

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21 **32.** (previously presented): The system as recited in Claim 30, wherein
22 the processing agent is further configured to perform packet-level fast transcoding
23 and related signaling.

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